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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,783	08/11/2000	Hidefumi Yamashita	13783 (JP9-1999-0150 US1)	8476

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EXAMINER

NGUYEN, HOAN C

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s) <i>AK</i>	
	09/636,783	YAMASHITA ET AL.	
	Examiner	Art Unit	
	HOAN C. NGUYEN	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "an alignment film is applied after the formation of said wall-like structure, and then said seal member is applied outside said wall-like structure" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (US5831710A) from applicant's IDS.

In regard to claims 1-5 and 7, Colgan et al. teach (Figs. 2 and 6) a liquid crystal display device which has first and second substrates disposed with a predetermined gap, and seals a liquid crystal in the gap, comprising:

- a seal member (adhesive 52) provided at the gap between said first and second substrates (substrate 40 and cover 50), said seal member being disposed outside a display area to seal said liquid crystal 53;
- a wall-like structure (barrier 25) disposed outside the display area and inside the seal member, said wall-like structure being made of a different material from that of said seal member and formed in plural rows (col. 5, lines 18-23).

wherein (Figs. 2 and 7)

- said wall-like structure is composed of dashed rows having notches in regard to claim 2.
- the notches of said wall-like structure are formed alternately in the plurality of dashed rows so that said seal material does not flow directly into said display area (col. 5, lines 18-23) in regard to claim 3.
- a column-like structure for keeping the gap between said first and second substrates constant is provided, and a shape of said wall-like structure is determined based on a state of said column-like structure in regard to claim 4.
- positions of the notches of the plural dashed rows in said wall-like structure are determined based on a position of a wiring formed either on said first substrate or on said second substrate (Fig. 7) in regard to claim 5.

In regard to claim 8, Colgan et al. teach (Figs. 2-7) a liquid crystal display device, wherein said seal member flows out in a fluidized state when said second substrate is pressed into said first substrate while heating said first and second substrates, and said wall-like structure is capable of stopping said seal member from entering said display

area, said seal member being in a fluidized state, and permitting said liquid crystal to flow into outside the wall-like structure when said liquid crystal flows out from said display area. This is conventional technique of sealing the seal member and injecting the liquid crystal materials.

In regard to claim 9, Colgan et al. teach (Figs. 2-7) the liquid crystal display device, wherein said wall-like structure prevents air traps from occurring when said liquid crystal to be sealed flows into said display area by forming the meniscus of the liquid crystal material.

In regard to claim 10, Colgan et al. teach (Figs. 2-7) the liquid crystal display device comprising the steps of

- applying resin onto a first substrate, and patterning said resin to form a frame-shaped wall-like structure surrounding a display electrode;
- arranging a second substrate so as, to face said first substrate on which said seal member is applied,
- pressing said second substrates to each other by said seal material as prior art disclosed in Fig. 1 (col. 3, lines 15-17);
- injecting a liquid crystal into a gap between said first and second substrates, which are adhered to each other. This is well known prior art.

In regard to claims 11 and 12, Colgan et al. teach (Fig. 7) the liquid crystal display device, wherein

- a column like structure for regulating a size of the gap between said first and second substrates is formed together with said wall-like structure by patterning
- said wall like structure takes a frame-shaped structure composed of a plurality of rows, each row showing a dashed line shape have predetermined notches.

In regard to claim 13, it is well-known art that said wall like structure is formed by applying photosensitive resin onto said first substrate, performing a UV exposure for the resin using a photomask to pattern the wall-like structure, and curing the resin to harden the resin.

In regard to claim 14, it is well-known art that an alignment film is applied after the formation of said wall-like structure for regulating orientation the liquid crystal molecules.

2. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (US5831710A) as applied to claim 1, in view of Haven (EP0113064A1) from applicant's IDS.

Haven teaches (Figs. 2 and 6) a liquid crystal display device, wherein said wall-like structure (a raised ledge 53) is formed to a height lower than that of the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Colgan et al. disclosed with the wall-like structure formed to a height lower than that of

the gap formed between said first substrate and said second substrate for reducing the meniscus of the liquid crystal material.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Von Gulfeld (US6219126B1) discloses a liquid crystal display with a barrier fillet and an adhesive fillet in the periphery.
- Carrington (US5459598A) discloses an optical modulation device with liquid crystal voids formed by the spacers arrangements.
- Kimura (US5777713) discloses a liquid crystal display unit with spacers form in the light shielding regions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SIKES L WILLIAM can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8178 for regular communications and (703) 308-5841 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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June 6, 2002


TOANTON
PRIMARY EXAMINER